CLAIMS

What is claimed is:

1   1. A method, comprising controlling utilization of a router resource at the interface between

2   a first number of local area network (LAN) ports and a second number of wide area

3   networks (WAN) links by each LAN port according to bandwidth availability of

4   corresponding bundles of the WAN links assigned to each of the LAN ports and a switching

5   capacity of the router resource.

1   2. The method of claim 1 wherein individual ones of the LAN ports are permitted to exceed

2   their fair share of the switching capacity of the router resource if a current switching load

3   due to traffic from all of the LAN ports is less than a maximum switching capacity for the

4   router resource.

1   3. The method of claim 1 wherein if a current switching load due to traffic from all of the

2   LAN ports is equal to a maximum switching capacity of the router resource then those of the

3   LAN ports that are attempting to utilize more than their fair share of the bandwidth

4   availability or the switching capacity are throttled back.

1   4. The method of claim 3 wherein throttling back a LAN port comprises dropping packets

2   inbound on that port at the packets' entry point to the router resource.

1   5. A method, comprising determining, at an entry port of a router resource, whether or not

2   to admit inbound traffic according to a fair allocation distribution scheme that allows traffic

3   to be admitted according to bandwidth availability of a corresponding exit point for the

4   traffic and a current utilization of total switching capacity of the router resource.

1   6. The method of claim 5 wherein the fair allocation scheme allows, traffic to be admitted so

2   long as the bandwidth availability of the corresponding exit point exists.

1   7. The method of claim 5 wherein the fair allocation scheme allows traffic to be admitted

2   even if a port of the router resource associated with that traffic is exceeding an allocated

3   amount of the total switching capacity of the router resource so long as the total switching

4   capacity of the router resource has not been attained.

1   8. The method of claim 7 wherein the fair allocation scheme allows traffic to be admitted so

2   long as the bandwidth availability of the corresponding exit point exists.

1   9. A routing resource configured to provide fair allocation of switching capacity among a

2   number of input ports thereof according to output bandwidth capacity of output links

3   associated with the input ports and total switching capacity utilization of the routing

4   resource.

1   10. The routing resource of claim 9 wherein the fair allocation is maintained by throttling

2   back those input ports which attempt to exceed the output bandwidth capacity of their

3   associated output links or which attempt to utilize more than their allocated share operating

4   at the total switching capacity.

1   11. The routing resource of claim 10 wherein throttling back comprises dropping packets at

2   an ingress point of the routing resource.

1   12. A router configured to communicatively couple a first number of local area network

2   (LAN) ports with a second number of wide area network (WAN) links according to

3   bandwidth availability of bundles of the WAN links assigned to each of the LAN ports

4   and a switching capacity of the router.

1   13. The router of claim 12 wherein the router if further configured to permit individual

2   ones of the LAN ports to exceed their fair share of the switching capacity of a current

3   switching load due to traffic from all of the LAN ports is less than a maximum switching

4   capacity of the router.

1   14. The router of claim 12 wherein the router is further configured to throttle back those

2   of the LAN ports exceeding their fair share of the switching capacity when a total

3   switching load due to traffic from all of the LAN ports is equal to a maximum switching

4   capacity of the router.

1   15. The router of claim 14 wherein throttling back a LAN port comprises dropping one

2   or more packets.

1   16. Computer-readable instructions configured to permit a router resource to determine

2   at an entry point thereof, whether or not to admit inbound traffic according to a fair

3   allocation distribution scheme that allows traffic to be admitted according to bandwidth

4   availability of a corresponding exit point for the traffic and a current utilization of total

5   switching capacity of the router resource.

1   17. The computer-readable instructions of claim 16 wherein the fair allocation scheme

2   allows traffic to be admitted so long as the bandwidth availability of the corresponding

3   exit point exists.

1 18. The computer-readable instructions of claim 16 wherein the fair allocation scheme

2 allows traffic to be admitted even if a port of the router resource associated with that

3 traffic is exceeding an allocated amount of the total switching capacity of the router

4 resource so long as the total switching capacity of the router resource has not been

5 attained.

1 19. The computer-readable instructions of claim 18 wherein the fair allocation scheme

2 allows traffic to be admitted so long as the bandwidth availability of the corresponding

3 exit point exists.

1 20. The computer-readable instructions of claim 16 wherein the fair allocation is

2 maintained by throttling back those input ports which attempt to exceed the output

3 bandwidth capacity of their associated output links or which attempt to utilize more than

4 their allocated share operating at the total switching capacity.

1 21. The computer-readable instructions of claim 20 wherein throttling back comprises

2 dropping packets at an ingress point of the routing resource.

1 22. The computer-readable instructions of claim 16 as embodied on a computer-readable

2 medium.

1 23. The computer-readable instructions of claim 16 as embodied in electronic signals

2 transported through a communication medium.